

APPLICATION FOR UNITED STATES PATENT

Inventor(s): Michael Barborka
1721 Leslie Road
Baltimore, Maryland 21222
U.S. Citizen

Invention: **FRAMING JIG**

LAW OFFICES OF ROYAL W. CRAIG
10 North Calvert Street
Suite 153
Baltimore, MD 21202
(410) 385-2383

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FRAMING JIG

CROSS-REFERENCE TO RELATED APPLICATIONS

The present application derives priority from U.S. Provisional Patent Application Serial No.
10 60/459,943, filed 2 April 2003.

BACKGROUND OF THE INVENTION

1. Field of the invention

The invention relates to wood framing tools and, more particularly, to a hand held jig for
15 properly positioning and aligning studs or rafters for framing of walls, floors or roofs.

2. Description of the Background

The framing of walls, floors and roofs must be assembled according to a predetermined and
uniform pattern, so that plumbing, wiring and the outer covering of walls and floors can be added to the
20 structure and placed according to the building plan. Typically two-by-four lumber is used for framing.
A section of framing for a wall, roof, or any portion thereof consists of a rectangle formed of four two-
by-fours joined at the corners. A plurality of studs extend between the two sides of the rectangle and
are positioned vertically in the wall (parallel to the pitch in a roof). Normally, studs are positioned in
parallel relation and spaced to sixteen inches on center. The design of fixtures for plumbing and wiring
25 as well as the uniform sizing of sections of wallboard and ceiling tiles relies on this standardized

5 alignment and spacing of the studs and rafters.

More specifically, in the case of a wall the studs extend from a sill plate on the floor to a header plate at the ceiling. The position for the center of a stud is measured and marked on the sill plate and on the header plate. The stud, which has been cut to the correct length to match the distance from the sill plate to the header plate, is placed in position with one end centered on the mark on the sill plate and the other end centered on the mark on the header plate. The stud is nailed in place by a method known as toe nailing, which requires that a nail be driven into the stud, at an angle such that the nail passes through the end of the stud and into the sill plate, at the lower end and into the header plate at the upper end. The force of nailing tends to move the stud along the sill or header plate and away from the mark, where it is to be secured. One way of compensating for the movement of the stud, during nailing, is to start a nail in each side of the stud and to alternately drive one nail and then the other, in an effort to balance the movement in each direction and finish with the stud being secured at the marked position. This method is time consuming and somewhat unreliable. A second method is to cut a piece of scrap lumber to a length equal to the intended distance between the studs when they are spaced at sixteen inches on center. When a stud is nailed to the sill plate, the piece of scrap lumber is placed on the sill plate abutting a previously secured stud and the piece of scrap lumber acts as a brace against movement while the side of the stud opposite the brace is nailed. The same method can be used for nailing the stud to the header plate; however the piece of scrap lumber must be held in position against the header plate.

In certain projects, a section of framing, for a wall, can be constructed as a modular unit to be

5 installed as a section of wall framing. In this case, the framing work can be done in an horizontal position. This eliminates the need for holding a brace overhead while a stud is being secured in place. Also, toenailing can be avoided because nails can be driven through the sill plate and the header plate from a position directly opposite the position of the stud so that the nail can pass straight into the end of the stud. It is still necessary to measure and locate the correct position for each stud so that the spacing
10 of sixteen inches on center can be maintained. A piece of scrap lumber, cut to the proper length, is often used as a spacing gauge to eliminate the need to measure and mark the location for each stud. If the modular unit is being constructed on a flat surface, such as a floor, it is convenient to rest the scrap lumber on the flat surface between the studs. As each stud is secured in place, it is used with the scrap lumber to locate the position for the next stud. For the installation of rafters, a method similar to the
15 modular construction of wall framing unit can be used. In both cases, the stud to be attached as well as the scrap lumber-spacing gauge must be held in place. However, it is common for homeowners to undertake these construction projects themselves (homeowners typically work alone). Consequently, they do not have the benefit another person to help in the process of properly placing framing timbers and holding them in place while they are nailed.

20 There remains a need for a portable, inexpensive jig which can be used by a person working alone to position and hold a stud or rafter firmly in place so that it can be secured with nails or screws.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide a compact and portable jig for positioning and

5 firmly holding studs and rafters in place so that they can be secured with nails or screws.

It is another object of the present invention to provide a jig which can be used to position studs or rafters and to hold them in place while the section of framing, being assembled is in either a vertical or an horizontal position.

In accordance with the stated objects a generally rectangular stud positioning jig is provided.

10 The jig has two parallel notches sized to slideably receive the nominal two inch surface of a piece of two-by-four lumber within each notch and said notches being spaced apart a distance of sixteen inches measured from the center of one notch to the center of the other notch.

In order to construct the framing for a wall, a sill plate and a header plate must be secured in place, such that they are aligned and parallel. A first stud must be secured in position. A second stud, 15 which is to be affixed to the sill plate and the header plate in a position 16 inches on center, from the first stud, is placed in its approximate position and the jig of the present invention is placed so that one of the notches receives the first stud and the second stud is received within the other notch. The jig is moved so that the studs entirely fill the space within the notches, the second stud is aligned with the sill plate. The jig is raised or lowered to a point near the sill plate but clear of the action of the tool being 20 used to secure the stud in place with nails or screws. The jig is held in position until the lower end of the stud is secured in position. The jig is raised to a point close to the header plate but clear of the action of the tool being used to secure the stud in place and used to hold the upper end of the stud in position while it is secured to the header plate. The first stud provides the support braced by the jig so that the second stud can be secured in place without movement. The installation of the next stud is

5 completed in the same manner with the second stud providing support, braced by the jig and the process continues with each succeeding stud being installed using support from the immediately preceding stud. In order to hold the jig in position while securing the studs, a nail can be partially driven into each stud below the jig, to act as a stop.

10 A modular section of wall framing can be constructed in a horizontal orientation on a flat surface such as a floor. Four two-by-fours are laid out in the shape of a rectangle having two sides, which form the header plate and sill plate, cut to the correct size to match the length of the section of framing to be assembled and two sides, which form a first and last stud, cut to the correct size to match the height. The two-by-fours are joined at the corners of the rectangle. The studs can be secured by driving nails or inserting screws straight through the sill plate and into the end of the studs. Likewise the
15 nails or screws can be driven through the header plate straight into the other end of the stud. A second stud can be secured by placing it in its approximate position and placing the jig such that one notch receives the first stud, which is perpendicular to the sill plate and the header plate, and such that the other notch, of the jig, receives the second stud. The jig determines the correct location for the second stud. Once the second stud is secured, the jig can be placed such that one notch receives the second
20 stud and the other notch, receives a stud, which has been positioned in its approximate location. The process can be repeated to determine the correct location and to secure each succeeding stud. In order to speed the process, two or more jigs of the present invention may be used simultaneously to position both ends of a stud or to position two or more studs.

25 In the case of the installation of rafters or other projects where the work is not resting on a supporting surface, the jig will remain in place without the need of additional support as long as the

5 work is somewhat horizontal.

BRIEF DESCRIPTION OF THE DRAWINGS

Other objects, features, and advantages of the present invention will become more apparent from the following detailed description of the preferred embodiment and certain modifications thereof
10 when taken together with the accompanying drawings in which:

FIG. 1 is a perspective view of the framing jig 5 of the present invention.

FIG. 2 is a perspective view of a section of wall framing 20 with the framing jig 5 of the present invention in position on two studs 22, 23, one of which is to be secured in place.

FIG. 3 is a perspective view of an horizontal construction of a modular section of wall framing
15 30 with several framing jigs 5 of the present invention in place to hold a plurality of studs 32, to be secured, in position.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The preferred embodiment of the present invention is a framing jig 5, shown in FIG. 1,
20 comprising a rigid body preferably having a generally rectangular shape approximately $18\frac{7}{8}$ inches in length, approximately 4 inches in width and approximately 1 inch thick. Two parallel notches 6 extend inward from one side. The notches 6 are approximately $1\frac{1}{2}$ inches wide and approximately $3\frac{1}{4}$ inches long. The notches 6 are equally spaced such that their centers are 16 inches apart. In the preferred embodiment, it is also desirable to have a cut out 7, or opening, in the portion of the framing jig 5
25 between the notches 6 for use as a grab handle. The framing jig 5 is preferably fabricated of wood.

5 Alternative embodiments of the present invention may have dimensions other than those detailed above, may be formed with more than two equally spaced notches **6**, and may be fabricated of other lightweight, rigid materials such as plastic or aluminum.

 In using the framing jig **5**, a first stud **21**, or framing member, is secured in position flush with an existing wall of the building being framed, as shown in FIG. 2. It is then necessary to measure, mark
10 and secure a second stud **22**, using conventional methods, because one of the notches **6**, of the present invention cannot be positioned to receive the first stud **21**. Once the second stud **22** is secured in place, the framing jig **5** of the present invention can be used and it is not necessary to measure or mark the location for the remaining studs **23** in the section of framing **20**. The framing jig **5** is positioned near the sill plate **24** such that one of the notches **6** receives the second stud **22** and the other of the notches
15 **6** receives a third stud **23**, which has been placed approximately in its proper location. The framing jig **5** is moved so that the second and third studs **22**, **23** completely fill the space in the notches **6** and the third stud **23** is aligned with the sill plate **24**. The framing jig **5** can be moved parallel to the studs **22**, **23** so as to clear the area of action of a tool being used to secure the stud **23** to the sill plate **24**. The third stud **23** may then be toe nailed to the sill plate **24** or attached with screws or other fasteners. A
20 nail or screw may be partially driven into the second and third studs **22**, **23**, below the position of the framing jig **5** to retain the framing jig **5** in position while the stud **23** is being secured to the sill plate **24**. Likewise, after the third stud **23** is secured to the sill plate **24**, the framing jig **5** may be moved, parallel to the studs **22**, **23**, to a position near the header plate **25** and the same method may be used to secure the stud **23** to the header plate **25**. After the third stud **23** is secured to the sill plate **24** and to the
25 header plate **25**, another stud (not shown in the Figures) may be placed in its approximate location and

5 the framing jig 5 may be moved such that the notches 6 receive that stud and the third stud 23. The method is repeated for each succeeding stud until the section of framing 20 is completed. The framing jig 5 positions a stud 23 to be secured in its proper location to maintain the spacing of sixteen inches on center and acts as a brace on a stud 22 which has previously been secured to retain each stud 22, 23 in position while it is being secured in place. By the use of a nail or screw partially driven into the stud 22,
10 23 below the framing jig 5, it remains in place without the necessity of manually holding it while the stud 22, 23 is being secured.

When framing 30 is being assembled in an horizontal orientation, as in FIG. 3, for installation as a modular unit, it is usually possible to position the framing jig 5 such that the first stud 31 is received in one of the notches 6 and the second stud 32 is received in the other of the notches 6. This eliminates
15 the need for measuring, marking and securing the second stud 32, by conventional methods, as described above. Also, when framing is being done without a supporting surface under the framing 30, the framing jig 5 will remain in place, as shown in FIG. 3, without the necessity of being held manually.

The above-described framing jig 5 according to the present invention is particularly useful when an individual is working alone to install studs or rafters, but it is also useful when a number of individuals
20 are working together. Also, the invention may be used as a single unit or two or more framing jigs 5, of the present invention may be used together to position one or more studs 31-34, at the locations where they are to be secured (see FIG. 3).

Those skilled in the art will recognize that there are other methods which may incorporate the framing jig 5 of the present invention. Particularly, the use of a plurality of framing jigs 5 would allow
25 both ends of a stud to be positioned at the same time and additionally, more than one stud could be

5 maintained in positioned at the same time by arranging the framing jigs **5** as shown in FIG. 3. It is also possible that minor variations in the design of the framing jig **5** may be made without departing from the spirit of the invention, including but not limited to positioning the notches **6** for a standard of spacing different from the sixteen inches on center standard.